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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
08/578,980	12/27/1995	TAKANOBU KAMAKURA	39-5461-0	3635

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EXAMINER	
WILLE, DOUGLAS A	

ART UNIT	PAPER NUMBER
2814	

DATE MAILED: 04/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	08/578,980	KAMAKURA, TAKANOBU	
	Examiner	Art Unit	
	Douglas A. Wille	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 April 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 11-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 11-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *27 December 1995* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 17, 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scifres et al. in view of Inoue et al.

3. With respect to claim 1, Scifres et al. show a heterostructure laser (see Figure 2) with a clad layer 25, an active layer 29 and a second clad layer 31, electrodes 34, 35 and a strain layer 27 which prevents defect migration (column 4, line56). Inoue et al. show that the use of strained layers may not always work (column 1, line 62) and teach the use of a defect layer (see Figure 1 and column 5, line 10) where the dislocations are prevented from transmitting through. It would have been obvious to use the Inoue et al. structure in the Scifres et al. device for those cases where the strain layer is insufficient.

4. With respect to claim 17, Scifres et al. show (for instance) InGaAs, AlGaAs and InAlGaAs (column 3, line 59).

5. Claims 11 – 16, 18 – 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scifres et al. in view of Inoue et al. and further in view of Sugawara et al.

6. With respect to claim 11, Scifres et al. show a heterostructure laser (see Figure 2) with a clad layer 25, an active layer 29 and a second clad layer 31, electrodes 34, 35 and a strain layer 27 which prevents defect migration (column 4, line56). Inoue et al. show that the use of strained

layers may not always work (column 1, line 62) and teach the use of a defect layer (see Figure 1 and column 5, line 10) where the dislocations are prevented from transmitting through. It would have been obvious to use the Inoue et al. structure in the Scifres et al. device for those cases where the strain layer is insufficient. Sugawara et al. show the use of a current spreading layer 15 (see cover Figure). It would have been obvious to include the current spreading layer to provide a more uniform output with improved reliability.

7. With respect to claim 12, Scifres et al. show that a second strain layer could be included (column 4, line 63).

8. With respect to claims 13 and 14, Inoue et al. show a defect density of greater than $(10)^6/cm^2$ (column 5, line 31). Since clad layers have as few defects as possible, the defect layer will have a greater defect density.

9. With respect to claims 15 and 16, Scifres et al. show the strain layer as having less than 4% strain, which includes 1% strain.

10. With respect to claim 18, Scifres et al. show (for instance) InGaAs, AlGaAs and InAlGaAs (column 3, line 59).

11. With respect to claims 19 and 20, Scifres et al. show a layer of 100 nm (column 4, line 47).

12. With respect to claim 23, to the extent that it is understood, Scifres et al. show a heterostructure laser (see Figure 2) with a clad layer 25, an active layer 29 and a second clad layer 31, electrodes 34, 35 and a strain layer 27 which prevents defect migration (column 4, line56). Inoue et al. show that the use of strained layers may not always work (column 1, line 62) and teach the use of a defect layer (see Figure 1 and column 5, line 10) where the dislocations are

prevented from transmitting through. It would have been obvious to use the Inoue et al. structure in the Scifres et al. device for those cases where the strain layer is insufficient. Sugawara et al. show the use of a current spreading layer 15 (see cover Figure). It would have been obvious to include the current spreading layer to provide a more uniform output with improved reliability.

Claim Rejections - 35 USC § 112

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. Claim 23 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

15. Claim 23 states that the first electrode is connected to the first clad layer. This is not possible in view of the placement of the defect layer. In addition, the last line has "...said current...", which has not previously been mentioned.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas A. Wille whose telephone number is (571) 272-1721. The examiner can normally be reached on M-F (6:15-2:45).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Douglas A. Wille
Primary Examiner